

# IMPROVED PRESSURE VESSEL

## Abstract of Disclosure

A pressure vessel for processing at least one material in a supercritical fluid. The pressure vessel includes a self-pressurizing capsule for containing at least one material and the supercritical fluid in a substantially air-free environment, a pressure transmission medium surrounding the capsule for maintaining an outer pressure on the capsule, at least one heating element insertable in the pressure transmission medium such that the heating element surrounds the capsule, a temperature measurement means for measuring a temperature of the capsule, a temperature controller for controlling the temperature and providing power to the heating element, a restraint to contain and hold in place the capsule, the pressure transmission medium, and the heating element, and at least one seal between the restraint and the pressure transmission medium for preventing escape of the pressure transmission medium. Methods of using the pressure vessel, processing a material at high temperature and high pressure in the presence of a supercritical fluid within the capsule are also described.

## Figures